

**What is claimed is:**

1. A paper dispenser for mounting a paper roll comprising:
  - a tube with an elongate lateral opening and a cavity,
  - a central shaft disposed inside the cavity of the tube,
  - 5 a spring set for shaft having a leading end inserted and fixed on the central shaft and a rear end connected to an initial end of the paper roll; wherein the spring set for shaft rotates in accordance with the central shaft so as to release the paper through the elongate lateral opening of the tube or turn the paper back to the cavity; and an annular
  - 10 leafspring set arranged between the tube and the spring set for shaft.
2. The paper dispenser as claimed in claim 1, wherein the tube having two tube caps covering the top and bottom thereof for forming the cavity.
3. The paper dispenser as claimed in claim 1, wherein a round hole is
- 15 mounted on the center of the tube cap and an upper and a lower positioning pin are inserted and positioned through the round hole of the upper and lower tube cap respectively.
4. The paper dispenser as claimed in claim 1, wherein a ratchet wheel is
- 20 installed on the upper positioning pin for controlling the rotation of the central shaft.

5. The paper dispenser as claimed in claim 1, wherein the paper dispenser further having an arcuate elastic piece; one end of the arcuate elastic piece is connected to the elongate lateral opening while the other end thereof rests against the outer layer of the paper roll for guiding the rear end of the paper roll stretching out from the elongate lateral opening.
6. The paper dispenser as claimed in claim 1, wherein the spring set for shaft is a spring in close ring shape and is made of a curled elastic piece with elasticity in radial direction.
7. The paper dispenser as claimed in claim 1, wherein the annular leafspring set is an open ring spring, made of curled elastic piece with elasticity along radial direction.
8. The paper dispenser as claimed in claim 1, wherein the annular leafspring set having at least an annular spring.
9. The paper dispenser as claimed in claim 1, wherein the annular spring is arranged inside the tube to restrain the circumference of the paper roll.
10. The paper dispenser as claimed in claim 1, wherein the contact area between and the paper roll and the annular leafspring set is under a certain value so as to reduce the friction therebetween.

11. A pen with a paper dispenser comprising:

a penholder with a refill for writing, and a paper dispenser arranged on top of the penholder for releasing and rewinding a paper roll; the paper dispenser having a tube with an elongate lateral opening,

5 two tube caps covering the top and bottom of the tube for forming a cavity,

a central shaft disposed inside the cavity of the tube,

a spring set for shaft having a leading end inserted and fixed on the central shaft and a rear end connected to an initial end of the paper roll;

10 wherein the spring set for shaft rotates in accordance with the central shaft so as to release the paper through the elongate lateral opening of the tube or turn the paper back to the cavity, and an annular leafspring set arranged between the tube and the spring set for shaft.

12. The pen with a paper dispenser as claimed in claim 11, wherein a

15 round hole is mounted on the center of the tube cap and an upper and a lower positioning pin are inserted and positioned through the round hole of the upper and lower tube cap respectively.

13. The pen with a paper dispenser as claimed in claim 12, wherein a

20 ratchet wheel is installed on the upper positioning pin for controlling the rotation of the central shaft.

14. The pen with a paper dispenser as claimed in claim 13, wherein a rotation cap is set on the ratchet wheel; the central shaft is controlled by the rotation of the rotation cap for releasing or retracting the paper roll.

5 15. The pen with a paper dispenser as claimed in claim 13 further having a shaft brake with a serrated braking part, extends and keeps a certain distance with the ratchet wheel; by the elastic compression of the shaft brake, the ratchet wheel is locked so as to restrain the central shaft.

10 16. The pen with a paper dispenser as claimed in claim 15 further having a shallow slot being locked with the shaft brake while the shaft brake blocks the rotation of the central shaft for providing transversal support.

15 17. The pen with a paper dispenser as claimed in claim 11 further having an arcuate elastic piece; one end of the arcuate elastic piece is connected to the elongate lateral opening while the other end thereof rests against the outer layer of the paper roll for guiding the rear end of the paper roll stretching out from the elongate lateral opening.

20 18. The pen with a paper dispenser as claimed in claim 11, wherein the spring set for shaft is a spring in close ring shape and is made of a curled elastic piece with elasticity in radial direction.

19. The pen with a paper dispenser as claimed in claim 11, wherein the annular leafspring set is an open ring spring, made of curled elastic piece with elasticity along radial direction.
20. The pen with a paper dispenser as claimed in claim 11, wherein the  
5 annular leafspring set having at least an annular spring.
21. The pen with a paper dispenser as claimed in claim 19, wherein the annular spring is arranged inside the tube to restrain the circumference of the paper roll.
22. The pen with a paper dispenser as claimed in claim 11, wherein the  
10 contact area between and the paper roll and the annular leafspring set is under a certain value so as to reduce the friction therebetween.